Remarks

In response to the Office Action mailed June 9, 2003, Applicant respectfully requests reconsideration of the pending claims. To further prosecution of this application, Applicant submits the above amendments and the following remarks. The claims as presented are now in allowable condition.

Claims 1, 2, and 4-8 are currently active in the application. Claim 6 is objected to, claims 4-5 rejected under 35 U.S.C. §112, claims 1, 2, 4, and 5 rejected under 35 U.S.C. §102(b) as anticipated by Headley et al. (US 5,885,239), and claims 6 and 7 rejected under 35 U.S.C. §103(a) as unpatentable over Headley et al. in view of Lord et al. (US 1,885,457). Claim 8 has been added.

Objections

With the amendment of claim 6 removing the first occurrence of "and", the basis for the objection to claim 6 has been removed.

Rejections under 35 U.S.C §112

With the amendment of claim 4 to insert the number "1," the basis for the rejection of claims 4 and 5 under 35 U.S.C. §112 has been removed.

Rejections under 35 U.S.C. §102(b)

Headley et al. as Prior Art

Headley et al. describe a method for collecting red blood cells in the space between a perforate interior plate and an elastic impermeable diaphragm where the diaphragm expands to accommodate collection.

Claim 1 has been amended in response to this rejection. A perforate interior wall lies within a variable-volume chamber that communicates with a fluid port and is defined by a rigid wall and an elastic wall. A flat, rigid bottom surface includes the perforate interior wall and limits, at least in part, the upward movement of the elastic wall. The elastic wall is formed by a convoluted diaphragm with a region of convolution that substantially overlies the flat, rigid bottom surface when the elastic wall is in an unstretched state. Support for this amendment is found within the Application on page 9, lines 24-27 in conjunction with substitution of convoluted diaphragm 83 (Figure 8c) for simple diaphragm 71 (Figure 7a) in combination with interior plate 40 (Figure 6).

As Figure 12 of Headley et al. shows no overlap between a substantially flat, rigid bottom surface, having a perforate interior wall portion, and a region of convolution of an elastic diaphragm, Headley et al. do not describe a diaphragm with a region of convolution "substantially overlying the rigid bottom surface when in an unstretched state" as required by claim 1. Consequently, claim 1 is allowable over the cited art and dependent claims 2, 4, 5, and 8 are allowable for at least the same reasons.

Rejections under 35 U.S.C. §103(a)

Lord et al. describe a diaphragm mechanism where a rubber diaphragm is secured between plates forming a shell and attached at its center to a central pin. The diaphragm 7 is made thicker near plates 1 and 2 and pin 9 to reduce the likelihood of separation of the diaphragm from the plates and the pin (page 1, lines 44-52).

Claim 6 has also been amended in response to this rejection. A fluid processing disposable set contains a fluid port, a variable-volume chamber in fluid communication with the fluid port, and a rotary seal coupled to the fluid port. A rigid wall and an elastic wall define the chamber. The elastic wall is formed by a shaped diaphragm and, as amended, is sealed only at a mounting position on the rigid wall. Support for the amendment is found at page 3, lines 18-20 ("an elastic boundary (i.e., an impermeable diaphragm 31) sealed to a rigid, imperforate boundary wall 10 by an O-ring 35 or other means") and in Figure 2 with peripheral connection of diaphragm 31.

Headley et al. in combination with Lord et al. do not describe, teach, or suggest an elastic wall sealed only at a mounting position on the rigid wall. The diaphragm of Lord et al. is sealed both between the plates and around the central pin. As the dual seals are necessary for the mechanism to operate as an actuator, it is not possible to eliminate the seal around the pin and retain the actuator function.

Since the combination of Headley et al. and Lord et al. does not describe an elastic wall sealed only at a mounting position on a rigid wall as required by claim 6, claim 6 is patentable in view of the cited art. Dependent claim 7 is allowable for at least the same reasons.

In view of the foregoing amendments and remarks, this application is now in condition for allowance, and a notice to this effect is respectfully requested. If the Examiner believes, after these amendments, that the application is not in condition for allowance, the Examiner is invited to call the Applicant's attorney at the number listed below.

Respectfully submitted,

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